

1967

Free word association and recall in subjects with obsessive and hysterical personality styles.

Stephan David Weiss

University of Massachusetts Amherst

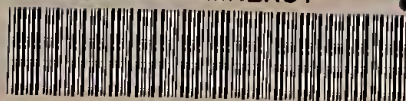
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Free Word Association and Recall in Subjects
with Obsessive and Hysterical
Personality Styles

Stephan D. Weiss

Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of Master of Science

University of Massachusetts
Amherst

August, 1967

ACKNOWLEDGEMENTS

The author gratefully acknowledges the assistance of Drs. S. L. Kates, L. T. Frase and R. W. Johnson for their advice and guidance during the preparation and completion of this manuscript.

Special gratitude is extended to Dr. S. L. Kates who served as thesis advisor. His suggestions and encouragement throughout this study are most appreciated.

The author also thanks those students who served as subjects for their cooperation and participation in this research project.

This research study was supported, in part, by Grant No. RD 2308 from the Vocational Rehabilitation Administration, U. S. Department of Health, Education, and Welfare.

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INTRODUCTION

There has been relatively little empirical research that has focused specifically upon the differential cognitive processes associated with obsessive-compulsive and hysterical neurotic response characteristics. Rather, the trend in the literature has been a theoretical description and explanation of the etiology, behavior, and thought processes of these individuals (White, 1964; Angyal, 1965; Dollard and Miller, 1950; Shapiro, 1965). Because of this situation, the present research was conducted as an empirical study of free word association in subjects with obsessive-compulsive and hysterical personality styles.

Obsessive-Compulsive Neurotic Behavior

The symptom syndrome associated with compulsion neurosis is presented by most observers in terms of the overinhibited behavior and overconscientiousness which is evident in this behavior style. Rigidity is also a common characteristic of this pattern of thought processes and behavior (Schafer, 1948).

The variety of defenses which characterizes the compulsive neurotic extends from overt compelling rituals and repetitive acts to thought processes which feature highly developed intellectualization, rationalization and isolation

mechanisms (Bosselman, 1964; Stern, 1961; Wolman, 1965; Lundin, 1965).

These defenses appear, according to most reports, to involve attempts to separate affective experience from rational and logical processes of thinking and behavior (Rapaport, 1951; Spiegel, 1959; Fenichel, 1945). The nature of this separation can be traced to the need for the obsessive-compulsive to handle the conflict associated with his mastery of instinctual demands. This view was held by Freud (1933), who considered this condition to arise from fixated psychosexual development at the time of bowel training. Conflict experienced at that time of personality development was thought to involve ambivalence related to conformity to parental demands for cleanliness. A polarity between stubborn resistance and extreme obedience is thought to arise in relation to this conflict. According to Bosselman (1965, p. 44):

These attitudes may apply to elimination itself, to cleanliness in general and to conformity in general. The concepts involved are those of regimentation of behavior and willingness to "give" (that is, to sacrifice autistic enjoyment in order to please others). Personality traits which develop in the presence of conflict regarding these concepts are of a certain typical character. They have been summarized alliteratively as parsimony, pedantry and petulance.

These characteristics are thought to extend beyond such overt behavior as social aloofness to the separation of thought from affect already noted.

Fenichel (1945, p. 278) states that "anal character traits formed in the conflicts around this (toilet training) have in part qualities of resistance offered by the instinct to the demands of the environment, in part qualities of obedience to them, and in large part from compromises between these two trends." It is implied by this that an individual with compulsive characteristics is faced with a desire to respond to his own impulses or to control them in a rigid manner. The behavioral manifestations of this ambivalence is stated by Angyal (1965, p. 164) to be "pathological doubt and indecision." According to him, "Indecision occurs in (these) noncommittal people not only in the form of symptoms but also as a style of life." This style of response is marked by an inhibition of both behavior and emotions when the compulsive neurotic meets stressful situations.

According to Jung (1918), the complexes associated with this pattern are not only the result of conflict at the anal stage of personality development but are also of a sexual origin. That is, he considers the self-criticism and self-doubt which is characteristic of compulsive behavior to be related to conflict associated with anal and erotic complexes. Ambivalent feelings toward responding to or controlling these impulses are thought to be the source of this self-doubt and indecision as well as critical

attitude.

This point of view is congruent with the theory of compulsive neurotic characteristics which Reich (1949) has proposed. Extending the sexual theory of Freud, he suggests that there are two layers of repression in the compulsive, the sadistic and anal upper level and the phallic layer below. According to Reich's viewpoint, the study of formal disturbances in this pattern of defenses should focus on the blocked affect which is characteristic of their responsiveness.

In contrast to the above analytical approaches to this problem, various researchers have attempted to relate learning principles to the development of obsessive-compulsive characteristics.

Dollard and Miller (1950) as well as Lundin (1965) discuss this development in terms of the reinforcing effects of anxiety reduction accompanying compulsive response styles in a variety of precipitating situations. It is stated by Dollard and Miller (1950, p. 16), for example, that "the compulsion is reinforced in exactly the same way as the avoidance response in the phobia and the responses of turning the wheel, pressing the bar, or pulling the handle in the [laboratory] experiments . . ."

The origins of this anxiety are said to vary, but childhood conflicts involving such social training as that

of cleanliness may be such a source. For example, these researchers state (p. 16) that "the act of washing the hands may have a reassuring effect because it has been so frequently associated during childhood with escape from criticism for having dirty hands."

Compulsions to these writers who stress learning principles in their approach to them may thus serve as: (1) responses that inhibit fear; (2) incompatible acts and thoughts which serve to remove one from the fear-eliciting stimulation; and (3) anxiety-reducing patterns of behavior and thought which distract the subject from anxiety-laden situations. Anxiety reduction is thus accomplished by withdrawal (physically or psychologically) or avoidance responses which are thereby reinforced, regardless of the adaptiveness or their lack of appropriateness.

Obsessive-Compulsive Cognitive Characteristics

The relationship between the above considerations and the thought process that is characteristic of compulsive persons is a complex one. A discussion of these cognitive processes may be best served by considering both traditional analytic doctrine and learning principles.

If the compulsive neurotic is thought to manifest some deficit in his ability to control his libidinal impulses (the traditional viewpoint), then he may reduce the anxiety associated with these feelings by the use of affect blocking

defenses which are reinforced by their service in reducing anxiety through avoidance of painful stimulation (the learning approach).

Rapaport (1951) describes this neurotic process as "a gigantic experiment of nature which attempts to banish impulses, affects, and primary process thinking . . . with 'logical' efforts at banishing these . . ." (p. 434).

Spiegel (1959) has made an extensive and interesting treatment of styles of communication for different personality styles. Among these is her consideration of obsessive-compulsive thought characteristics. She agrees with Rapaport's viewpoint and states on page 929: "Specifically these [compulsive neurotic] individuals attempt to insulate themselves from free emotional and ideational processes . . . [so that] he often lacks the language and the respect for affect." Instead of affective expression, the individual who relies upon the compulsive response style emphasizes logical and rational associations, just as he inhibits his overt behavior. These logical thought processes are considered to be accurate, with good attention well defined with regard to the stimulus situation. With increasing control, however, rigid and highly stimulus-bound associations may develop, according to Shapirc (1965).

Hysterical Neurotic Behavior

Hysterical neurotic behavior has been described in

terms of the exaggerated repressive defenses of denial which characterize it (Breuer and Freud, 1937; Schafer, 1948; Shapiro, 1966). This defensiveness appears to arise as a response of the hysteric to his own impulses and as an attempt to remove himself from the demands of his social environment (Angyal, 1965; Abse, 1966; Bosselman, 1964).

Rapaport et al. (1946) considered this response style to describe those individuals who show neurotic patterns of response under stress, and calls them hysteric-like neurotics, or hysteroform in their impulse control. For the following discussion this broad range of more or less pervasive neurotic characteristics will include the various degrees of hysteric-type defenses which are represented by avoidance mechanisms of defense such as denial in behavior and thinking.

According to Schafer (1948), the symptoms which are manifest with repressive defenses include "emotional lability, impulsiveness, childish naivete in general and conscious sexual naivete, a tendency toward histrionics, minimization of active and independent ideation as a means of coping with problems, a basic dependence on conventional percepts as guides to behavior, ego-centricity and blocking of thought processes when confronted with 'traumatic' (usually sexual but often aggressive) material . . ." (p. 33).

The traditional analytic approach to the etiology and dynamics of this syndrome was discussed originally by Breuer and Freud (1937) in Studies in Hysteria. According to them, sexuality is a major factor in most cases of hysteria and, even more than that, it represents a source pathogenesis in this disorder; "the sexual factor is by far the most important and pathologically the most fertile etiological factor" (p. 195). Conflict arising at the genital stage of psychosexual development from thwarted erotic impulses was considered to arouse ego resistance to direct expression of emotionally charged ideas. Neurotic responses such as dissociation and conversion symptoms were recognized as substitute channels for the motivated expression of these disguised impulses by traditional psychoanalysis.

Reich's (1949) discussion of the hysteric stresses the more predominant role of sexual tension for this disorder than for the obsessive compulsive. He contrasts these disturbances by stating on page 191: "The armor [of the hysteric] is much less solidified, much more labile than in the compulsive. . . ." In further contrast to the obsessive compulsive, the anxiety hysteric is considered by him to be less able to utilize intellectual defenses against the threat of anxiety. Rather than the sublimation and reaction formation which he considers to be useful to the compulsive, Reich considers the hysteric to repress his

impulses and to regress more easily under stress to earlier levels of development, particularly those associated with dependency frustrations.

Fenichel (1945) describes the conversion symptoms associated with extreme hysteria as comparable to "spells of affect," which involve archaic discharge.

Conversion symptoms . . . are characterized by a sudden overwhelming of the ego's mastery over motility and by involuntary physical discharge syndromes (p. 216).

Angyal (1965) in contrast to the above dynamic viewpoints considers the simple hysteric to cope with his environment by a method of adjustment which he terms "vicarious living." By this he means that the predominant style of this neurotic life is one which involves "a systematic repression of one's genuine personality characteristics, and on the other, an attempt to assume a substitute personality" (p. 138). This behavior pattern is thought to allow the individual who responds with it to be released from his own feelings in a disguised form and a method by which he may express suppressed affects without fearing reprisal for this expression. Based upon an organismic viewpoint of the act of a total personality, this approach lends itself to the understanding of the often histrionic "acts" which have been described by others as characteristic of hysterical behavior as well as to the interpretation of other "disguised" expressions of impulses. Other theorists

stress the fact that the hysterical symptoms under discussion may be learned as maladaptive reactions to personally distressing situations.

The above approach is represented by Dollard and Miller (1950), Lundin (1965) and Maher (1966). According to these writers, anxiety or fear is considered as a drive which arises in a situation which is associated with subjectively painful concomitants and is subsequently reduced by avoidance or withdrawal reactions. Such hysterical features as phobias and conversion symptoms are thought to remove the individual from the source of his fear. By reducing the drive associated with the feared situation or object, then, the particular behavior utilized in the avoidance are satisfying and thereby reinforced. Indeed, as we will discuss later, not only behavior but also psychological processes such as suppression of emotionally painful thoughts and feelings may be reinforced because of the fear reduction associated with it. Likewise, one may then expect that not only conscious behavior such as not attending to events that are threatening to an individual's self esteem but also apparent failure to perceive or recognize certain threatening elements in one's own environment can also be learned.

In support of this view of denial it is Maher (1966) who states on page 194: "current nosology in psychopathology

uses this term [hysteria] to describe patterns in which threatening experiences and events are not perceived, or if perceived are rapidly forgotten." Denial is, then, to be considered one of a number of distinctive response characteristics of anxiety hysteria--and may thus be an unconscious or intrinsic "behavior" process which is available to the principles of reinforcement.

Hysterical Cognitive Characteristics

In terms of a theory of neurotic thought processes the above considerations may apply. Spiegel (1959) has specifically emphasized a picture of histrionics in the typical reaction pattern of the hysteric. He contrasts the repressive thought processes with those of the obsessive compulsive by stating on page 928 that the former "doesn't linger on language and verbal thought and formulation for these would slow up the full sweep of the dramatization." For Abse (1966) this process is a typical representation often of raw impulses, for as he states on page 246: "Both hysteria and linguistic usage draw their material from a common source, a source, that is, in early sensorimotor experience. . . . In the psychotherapy of hysterical states our listening must also allow for the physical basis and experience from which metaphorical speech springs." A classical view of this thought process has come from the

work of Jung (1918) with free association experiments. He considers the word associations of those who use hysterical defensive processes to reflect intrusions of complex disturbances and notable affect disturbances. According to him, this process may be so disruptive that "The critical [stimulus] word is often forgotten and in its place the previous one is named" (p. 352).

Distractibility is also a common disruptive element in the word associations of highly repressive persons. Recall of previous responses to repeated stimulus words has been shown by Jung to be affected by these disorganizing factors. He states (p. 328): "We see that forgetting . . . is a function of repression." This distractibility and tendency to forget ideas, especially of an affect laden kind is in contrast to the rigid attention and stimulus bound quality of obsessive compulsive thinking, and the metaphorical nature of the words used in these more primitive thoughts of repressive persons stands out at opposite poles to the logic of intellectualized affect blocked associations produced by individuals who rely upon obsessive compulsive processes.

A Comparison of Cognitive Styles

There has been suggested a number of personality traits that distinguish the obsessive compulsive and hysterical neurotic. The relationship of these response patterns to

the overall functioning of these individuals has also been considered. The implications of these findings are now to be focused upon in terms of free association and memory characteristics of these patterns, distinct aspects of cognitive functioning (Jung, 1918; Bordin, 1966; Mann, 1966).

The effect of neurotic style upon attention has been pointed out by Shapiro (1965). He describes the attention of intellectualizers as tense and sharp in focus. Furthermore they concentrate well particularly on detail; however, this concentration is limited in mobility and range. He states on page 29: "this directedness of attention seems to be maintained, and is apparently maintainable, only under continuous tension, with great intensity and extreme narrowness of focus--in other words, in a continuous, rigid and in some respects hypertrophied form." Under stress, particularly emotional stimulation, this attention may be reduced to a less adequate level than for intellectual activity.

Hartmann (1964) agrees with the implication of this sharply focused attention for improved memory, provided that it is not overly bound up, as under stress. He considers the obsessive-compulsive to be highly task-oriented, and to perform as well as the normal on the recall of uncompleted tasks (which are of a nonaffective content).

Shapiro (1965) considers memory to differentiate the cognitive styles of repressive individuals from obsessive-compulsives. According to him (pp. 109-110): "Obsessive-compulsive people . . . are generally recognized as having 'good,' that is technical and factual memories . . . superior to 'normal' memory with respect to details." In contrast to more hysterical individuals, the compulsive style is "not conducive to the repression of memory contents. . . ." (p. 111). This is a notable difference between the former's thinking and that of the hysteric, "the nature of . . . [whose] thinking provides the groundwork for forgetting and makes it, in fact, inevitable" (p. 111).

Thus, the hysteric is considered to be distractible as a function of his repressive defensive style and his diffuse cognition. In contrast, the obsessive-compulsive type of defenses enhances memory for facts by an "active, intense and sharply focused attention," rather than the repressor "characterized by impressionistic, quickly and insufficiently organized mental contents . . ." (Shapiro, 1965, pp. 111-112).

Free Association and Cognitive Styles

According to Jung (1918), free associations constitute the basis for conscious sensation. Because each association is accompanied by a vast array of psychic productions, information about the mental processes should be reflected by

this material.

Psychological research has been relatively devoid of specific evidence to clarify the relationship between personality and word associations (Bordin, 1966). Contemporary literature has, however, taken steps toward some resolution of this problem.

The basic findings of Bousfield (1944) were an important step toward determining the differential effects of emotional material on free associations of normal subjects. This researcher reported that the rate and asymptote for "pleasant" associations were higher when subjects were instructed to produce sequences of pleasant and unpleasant words.

Mood, emotion and motive have also been shown to influence the associations of normal subjects. Bousfield and Barry (1937) demonstrated this by stating that an "internalized nonverbal context" can be created by emotional and motivational states. They found that the ratio of pleasant to unpleasant associates varied consistently with rated euphoria; happy subjects produced relatively more pleasant associations than did sad subjects.

Osgood (1953) presents evidence to show that the stimulus situation which elicits responses from a pool of associates depends upon the transitional probabilities of his associations. According to him on page 724: "Any and all

stimulations combine with the patterns of stimulation directly elicited by signs and parts of the context and function in greater or lesser degree to determine the mediational and instancial reactions made." Individual differences, then, are seen to influence the total momentary context of a response for a subject, and the arrangement of associative hierarchies is considered to change as a function of this momentary context. That personality may be an important aspect of associative performance is indicated by such laboratory findings.

A specific evaluation of the relationship between personality variables and differential word association performance has, however, come from a limited number of researchers. Among them are Johnson and Lim (1964) who found that the meaningfulness of stimulus material affected the mean number of free continuous associations given to a stimulus word. Individual differences in performances were most clear in relation to associations to "good" in contrast to "bad" stimulus words. According to these investigators (p. 349): "individual differences in the proportions of responses made to good and to bad words are indicative of personality differences in ability to deal with threatening verbal materials." Using the California Personality Inventory scales as measures of personality differences, these writers found that "Subjects having high ratios of

associations to good as opposed to bad words were somewhat more anxious and inhibited and have significantly less ego strength . . . than do subjects producing more equal numbers of associations to good and to bad words" (p. 350).

The study of personality effects upon memory has been the focus of a number of other investigators interested in looking at the same problem from a different viewpoint. Early work done by Erikson (1952, 1954) found that personality differences were related to the recall of free association test material.

More recent findings have indicated that specific emotional material may significantly affect recall deficits in the word association task and that these deficits will be characteristic of particular personality traits. Carlson (1954) investigated this issue, and proposed that words which could relate to "anxiety laden, repressed material" might produce a greater deficit in recall than would be the case for more neutral words.

Acknowledging the influence of linguistic properties of stimulus material (e.g., familiarity, homogeneity, and association value), this researcher found that personality measures were a determining factor in selective recall. The specific measures that he used to divide his groups were the Hysteria (Hy) and Psychasthenia (Pt) scales of

the MMPI. The overall results are presented as follows:

In general high ego strength and the hysteric, cyclothemic and extroversive tendencies would seem to go with relatively poor memory for disturbing material, whereas low ego strength and the psychasthenic, schizothyme and introversive tendencies would seem to go with relatively greater preferences in recall for disturbing material. . . .
(p. 86).

That repression and other hysterical defensive operations are involved in selective forgetting may be inferred from this paper, as well as the fact that intellectualizing processes of the psychasthenics (obsessive-compulsives) was relatively superior in its relationship to recall.

Research on Cognitive Styles

There appears to be more empirical research in the literature specifically focused upon these response characteristics of obsessive-compulsives and hysterics than that based upon any of the disease entity approaches (Maher, 1966). Because the measures (MMPI, Pt and Hy scales) which Maher cites as used to select subjects with those distinctive response styles are similar to those proposed in the present research, such research as he describes is relevant to our discussion of personality and cognition.

Earlier, one study by Lazarus et al. (1951) differentiating "repressors" (hysterics) and "intellectualizers" (obsessive-compulsives) studied this problem. They found that individuals who relied heavily upon intellectualizing

defenses "perceived threatening material [emotional sentences] with significantly greater accuracy than those with repressing mechanisms" (p. 482). In addition, these investigators found that subjects responded to threatening material with basically two distinct reactions: 1) ready verbalization and high perceptual accuracy, and 2) minimal verbalization with blocking and low perceptual accuracy. The repressors were found to react in the first way and the sensitizers in the latter manner.

Research conducted by Gossett (1964) and cited by Maher is relevant to the problem of the present study. He used the MMPI to select high repressors (Byrne, 1961, 1964) and found that there was greater selective forgetting of verbal material threatening to self esteem for those who utilized this hysterical-type defense than for others. Tempone (1962) is also cited in Maher's book as a study of the differential performance of "repressors" and "sensitizers" in an anagram solving task "in company with a group of confederates of the experimenter acting as subjects" (p. 195). As Maher describes this experiment:

Half of each group were given failures: very few correct solutions to anagrams were obtained by them. The other half of the subjects were given success on nearly all the items. Following this, each subject had the task of recognizing words presented on a tachistoscope. The words consisted of three practice words; the eight correct anagram solutions and eight neutral words. Repressors who had been in the failure group had

significantly higher thresholds for the recognition of anagram words than repressors who had been in the success group. Thresholds for the neutral words had no relationship to the experimental manipulations (p. 195).

How the implications extend to verbalization is considered by some very recent research on free association by Mann (1966). This investigator separated her subjects into hysterical and obsessive groups by the appropriate scales of the MMPI. She then exposed them to a traditional free association interview, and measured their responses for meaningfulness. It was her finding that obsessive-compulsives spoke of matters that were more relevant to the session and verbalized more than hysterics, who tended to speak less, show more blocking and yet remove themselves more from relevant topics to greater irrelevancies. According to the theories which have been presented by such writers as Shapiro and consistent with evidence of perceptual accuracy differences for the repressors and intellectualizers (Lazarus et al., 1951; Maher, 1966) these findings are of notable importance to the present study.

It is evident, then, that personality organization, associative performance and selective recall are related. Yet this relationship is by no means a simple one. Indeed, the many personality variables which have been considered in this study and said to be associated with

differential cognitive processes appear to be related in a complex interplay. To study this problem most adequately demands an approach which attempts to isolate these interacting variables and to look at not only the dependent variables of association quality or selective recall for emotional or neutral types of stimulus material, but to investigate the totality of these processes within a constant setting such that greater control over environmental influences can assure a more reliable estimate of how personality differences and cognitive functioning relate to each other.

STATEMENT OF PROBLEM

The problem of this investigation was to determine if subjects who were identified by the Minnesota Multiphasic Personality Inventory as possessing specific personality characteristics would manifest different cognitive processes and structures. The experiment focused upon whether subjects with high obsessive-compulsive characteristics differ from those with high hysterical characteristics and from normal subjects in their word associations under the two conditions of free responding and immediate recall of these continuous associations.

The study is to analyze first the word associations of the subjects to neutral and to emotional stimulus words in order to determine the effects of affective value of the stimulus words upon the different personality groups.

Then, differences in immediate recall of these word associations are to be studied for each group on each of the two types of stimulus words.

Finally, we will look at the effects of these two types of words summed across all groups to discover if neutral words lead to more association responses and to the better recall of these responses than emotional words.

HYPOTHESES

Free Association

A. Subjects whose scores are high on the measure of obsessive-compulsive characteristics (hereafter called obsessive subjects), subjects whose scores are high on the measure of hysterical characteristics (hysterical subjects) and subjects whose scores are moderate with respect to both obsessive-compulsive and hysterical characteristics (control subjects) will not differ in the number of word associations which they give to neutral stimulus words on the free association task.

B. Hysterical subjects will produce fewer word associations to emotional stimulus words on the free association task than obsessive subjects who will produce, in turn, fewer word associations than control subjects.

C. Hysterical subjects will produce more subjective word associations to both emotional and neutral stimulus words on the free association task than obsessive subjects and control subjects who will not differ in the number of subjective associations.

Recall

A. Hysterical subjects will recall fewer of their word associations to neutral stimulus words than obsessive

subjects and control subjects.

B. Hysterical subjects will recall fewer of their word associations to emotional stimulus words than obsessive subjects who, in turn, will recall fewer word associations than control subjects.

Stimulus Emotiveness

A. There will be more word associations elicited by neutral stimulus words in the free association and recall tasks for all groups than by emotional stimulus words.

B. There will be more subjective word associations elicited from all groups in the free association task by emotional stimulus words than by neutral stimulus words.

METHOD

Subjects

Approximately 160 subjects were tested in order to select those who were to be included in this experiment. There were 27 men and 36 women who served in this experiment, with 21 subjects in each of three groups. Undergraduate students enrolled in an introductory psychology course for non-majors constituted the population in this study.

Subjects were considered to be like obsessive-compulsive neurotics in their response characteristics if they scored within the top 33 per cent of the respondents on the Pt measure of the MMPI and within the bottom 33 per cent of the respondents on the Hy measure.

Subjects who scored within the top 33 per cent of the Hy scores and within the bottom 33 per cent of all subjects' Pt scores were considered to show hysteric-like characteristics.

The control group consisted of those subjects who obtained scores on the Pt and Hy scales of the MMPI which were within the middle 33 per cent of all scores on these measures. Hereafter these moderate scoring subjects will be called control or moderate subjects. Other diagnostic scales were controlled for in this selection of subjects in

order to insure homogeneity within groups. Table 1 shows these classification data.

Test Materials for Subject Classification

The tests which were used to classify subjects into the different groups was the Minnesota Multiphasic Personality Inventory (MMPI). The K corrected Psychasthenia (Pt) and Hysteria (Hy) scales of the MMPI were used to select those subjects who served in the experimental and control groups.

According to Dahlstrom and Welsh (1960) the Pt scale of the MMPI was developed in order to tap such neurotic . obsessive-compulsive characteristics as "psychasthenia, or the obsessive compulsive syndrome" (p. 69). These authors state further: "The personality features included in addition to the obsessive ruminations and the compulsive behavioral rituals . . . some forms of abnormal fears, worrying, guilt feelings and excessive vacillation in making decisions . . . excessively high standards of morality or intellectual performance, self critical or even self debasing feelings and attitudes, and the assumption of rather remote and unemotional aloofness from some personal conflicts. . . ."

Reliability measures, both test-retest and internal consistency of Pt have been shown to be satisfactory (Windle, 1955; Cofer, Chance and Judson, 1949; McKinley and

Table 1
Mean Scores, Standard Deviations, and Mean
T-scores for Group MMPI Scores

Groups	MMPI Scales			
	Pt		Hy	
Obsessive -	M	39.71	M	16.90
Compulsive	S.D.	3.06	S.D.	4.36
(n=21)	T	80	T	49
Control	M	30.76	M	18.14
(n=21)	S.D.	4.24	S.D.	2.42
	T	63	T	51
Hysteric	M	30.52	M	29.09
(n=21)	S.D.	3.14	S.D.	4.12
	T	62	T	70

Hathaway, 1956; Stone, 1965; Rosen, 1966). Satisfactory validity has also been demonstrated for the predictive validity of this scale (Griffith et al., 1958; McKinley and Hathaway, 1956). Griffith et al., for example, demonstrated the greater vacillation of high psychasthenic profile persons who gave significantly more doubtful judgments than low Pt profile subjects on a psychological weight discrimination task.

The Hy (Hysteria) scale of the MMPI was used to help select the subjects who demonstrate such hysterical mechanisms as denial, and repression in their personality characteristics and who "appear to use physical symptoms as a means of solving difficult conflicts or avoiding mature responsibilities. . . ." (Dahlstrom and Welsh, 1960, p. 57).

Studies by such researchers as Little and Fisher (1958) support the discriminative usefulness of this scale. Little (1949) has shown somatic complaints to be related to stress in normal subjects who score high on this scale. Reliability has been found to be satisfactory ($r = .71$) on test-retest procedures by Cottle (1950), Windle (1955) and Schofield (1953) with college student subjects. Rosen (1953) also found highly satisfactory test-retest reliability for this scale, using a clinical population. The intercorrelation of this scale with that of Pt has been found to be nonsignificant by such researchers as Bechtoldt and Dahlstrom

(1953), Lough and Green (1950), and Little (1949). It is therefore evident that these sections of the MMPI are measuring different personality characteristics.

The MMPI scales that were used in the present study are discussed by Ullman (1962) in terms of their usefulness in college population studies, especially those relating to repression and sensitivation dimensions of personality, and recognition thresholds of threatening stimuli. He has reviewed a number of studies (Eriksen, 1954; Eriksen and Browne, 1956; Eriksen and Davids, 1955; Eriksen, et al., 1958; Gordon, 1957, 1959; Matthews and Wertheimer, 1958; Page and Markowitz, 1955; Truax, 1957) and states the utility of these scales in studies which are related to the present one.

Word-Association Materials

Two sets of 20 words each were selected from such reports as Brown (1965) and Laffal (1952). These words appear in Table 2. One set of stimulus words is composed of emotionally toned words, the other list is neutral toned.

Each word was six letters long and both lists contained matched stimulus words with an average L count frequency for neutral words of 285/4.5 million and 239/4.5 million for emotional words and similar ranges of associative values (Thorn-dike and Lorge, 1944). These words were randomly mixed in a stimulus word list of 40 words.

Table 2
The Stimulus Words

<u>Neutral Words</u>	<u>Emotional Words</u>
*1. Forest	2. Vulgar
3. Center	4. Mother
5. Agency	7. Filthy
6. Column	10. Punish
8. Autumn	12. Kisses
9. Carton	13. Stupid
11. Harbor	16. Molest
14. Flower	19. Damage
15. Planet	20. Insult
17. Theory	22. Choked
18. Warmth	24. Caress
21. Obtain	26. Guilty
23. Bright	28. Afraid
25. Comedy	29. Wicked
27. Thread	31. Coward
30. Garage	33. Hatred
32. Window	34. Attack
35. Museum	37. Defect
36. Grassy	38. Fright
39. Branch	40. Insane

*Order of presentation.

Apparatus

An opaque projector was equipped with an automatic shutter which exposed each word on a screen for 1.5 seconds.

The words, block printed with 3/4" capital letters, were on blank 4" x 6" index cards. A wooden baseboard was used to hold each card on the projector base, so that each card appeared in the same position on the screen.

Each subject was given two 40 blank-paged booklets, one for the continuous association task and one for the recall task.

Procedure

There were two tasks in this study. All subjects were exposed to each condition. The first task was a continuous free association procedure (Noble, 1952). The second was a free recall task. The same list of 40 words was presented in the same order to all subjects under each condition.

Free Association Task.--The 160 subjects were seated in a large room equipped with the apparatus. They were instructed to put their responses on the page of their booklet that corresponded to the number of the stimulus word projected on the screen.

The method of continuous associations has been utilized in personality research by a number of investigators (Johnson and Lim, 1964; Laffal and Feldman, 1962; Wispe, 1954; Noble, 1952). Subjects were placed under minimal stress by

the emphasis on speed as was the case in research done by Siipola et al. (1955). When all subjects were seated, 1 seat apart, one E read to them the directions found in Appendix A.

After these directions were read to the subjects they were presented with the word list. Each word was exposed for 1.5 seconds. The interstimulus interval was 30 seconds in duration. The subjects were required to respond to these words after each had been removed from view. The subjects' responses to each stimulus word were written in their test booklet on the appropriate page.

Recall Task.--Upon the completion of Task I all subjects received another answer booklet exactly the same as that used in the previous test. They were requested to fill out the same information as previously in order to insure identical booklet pairs. In addition, they were asked to write "2" on this second booklet to indicate the second task in the study.

The same apparatus and word list were used in this task as in free association. E read to them the instructions found in Appendix B. He then presented the same list and order of the 40 stimulus words as in the previous task. Each word was exposed on the screen for 30 seconds. The subjects were required to respond to these words (while each word was exposed) with the associations they recalled writing to each corresponding stimulus word. Their responses

to each stimulus word were written on the page of their booklet that corresponded to the number of the word on the screen.

Scoring

The scoring of free associations for Task I included totaling the number of different associations for each stimulus word for each subject. Each of these responses was also scored for the dimension of subjectivity in relationship to the stimulus words according to the categories of classification set up by Wertheim and Geiwitz (1966). A response word was considered subjective if it did not relate to the stimulus word in the following ways: 1) logical (superordinate; subordinate; coordinate, similar or contrast); 2) physical-structure (whole; part; location); 3) physical-contingency (activities done by stimulus; activities done to or with stimulus; nonevaluative qualities); 4) physical-contemporaneity (commonly related to stimulus in experience, but not 1, 2 or 3). The following types of relationships were considered subjective: 1) primitive-subjective (personal evaluations of the stimulus word; idiosyncratic responses); 2) primitive-unrelated ("triggered" responses; no common relation); 3) primitive-form determined (clang associations); 4) primitive-no response ("I don't know"; no response; stimulus repeated). Each subjective response was scored one point. Only subjective words received this score.

The rationale for this scoring system followed Rapaport, Gill and Schafer (1946) in terms of associative characteristics (see Appendix D). Interscorer reliability for 2 independent judges was $r = .93$.

Recall was scored by checking the number of responses on Task 2 which matched the corresponding responses on Task 1. Each correct response was scored one point. Incorrect responses on this task received no points.

RESULTS

Free Association

The first part of the first hypothesis stated that there would be no differences among groups characterized by compulsive and hysterical features and the controls in the number of word associations to the neutral stimulus words. This hypothesis was supported by the findings which appear in Tables 3 and 4. There were no significant findings for the main effect of personality and for the personality by word emotiveness interaction (Table 4). The results indicated that control subjects produced the highest number of word associations to neutral stimulus words with a mean of 7.92 associations. Obsessive subjects showed a lower mean of 7.01 associations, but exceeded the 6.68 average of the hysterical subjects. Figure 1 shows this relative ordering of groups as a function of NA performance.

The second part of the first hypothesis relevant to the free association task predicted that the hysterical subjects would produce a greater number of associations to emotional words than obsessive subjects. It was also stated that control subjects would produce a higher mean score on this measure than each of the other groups. There were no significant findings for the personality main effects

Table 3

Means, Standard Deviations and t Ratios for Number of Associations, Subjective Associations and Recalled Associations to Neutral and Emotional Words as a Function of Personality Group

		Number of Associations			
		Neutral	Emotional	Overall	t
Obsessive-Compulsive (n=21)	M	7.01	6.08	6.54	1.36
	S.D.	1.30	1.64		
Control (n=21)	M	7.92	6.58	7.24	1.66
	S.D.	1.93	1.90		
Hysteric (n=21)	M	6.68	5.60	6.14	1.37
	S.D.	1.76	1.71		
Overall	M	7.26	6.08	6.67	
		Subjective Associations			
		Neutral	Emotional	Overall	t
Obsessive-Compulsive (n=21)	M	1.84	2.96	2.39	2.11*
	S.D.	1.02	1.34		
Control (n=21)	M	2.30	3.42	2.86	1.51
	S.D.	1.35	1.54		
Hysteric (n=21)	M	1.60	2.53	2.05	2.45**
	S.D.	.75	.99		
Overall	M	1.91	2.97	2.44	

Table 3 (Cont'd.)

		Recalled Associations			
		Neutral	Emotional	Overall	t
Obsessive - Compulsive (n=21)	M S.D.	5.23 1.03	3.43 .68	4.34	4.62****
Control (n=21)	M S.D.	5.40 1.10	3.63 1.08	4.54	3.54***
Hysterical (n=21)	M S.D.	4.67 1.27	3.16 1.06	3.92	2.84**
Overall	M	5.10	3.43	4.27	

* Significant at .05 level

** Significant at .025 level

*** Significant at .005 level

**** Significant at .001 level

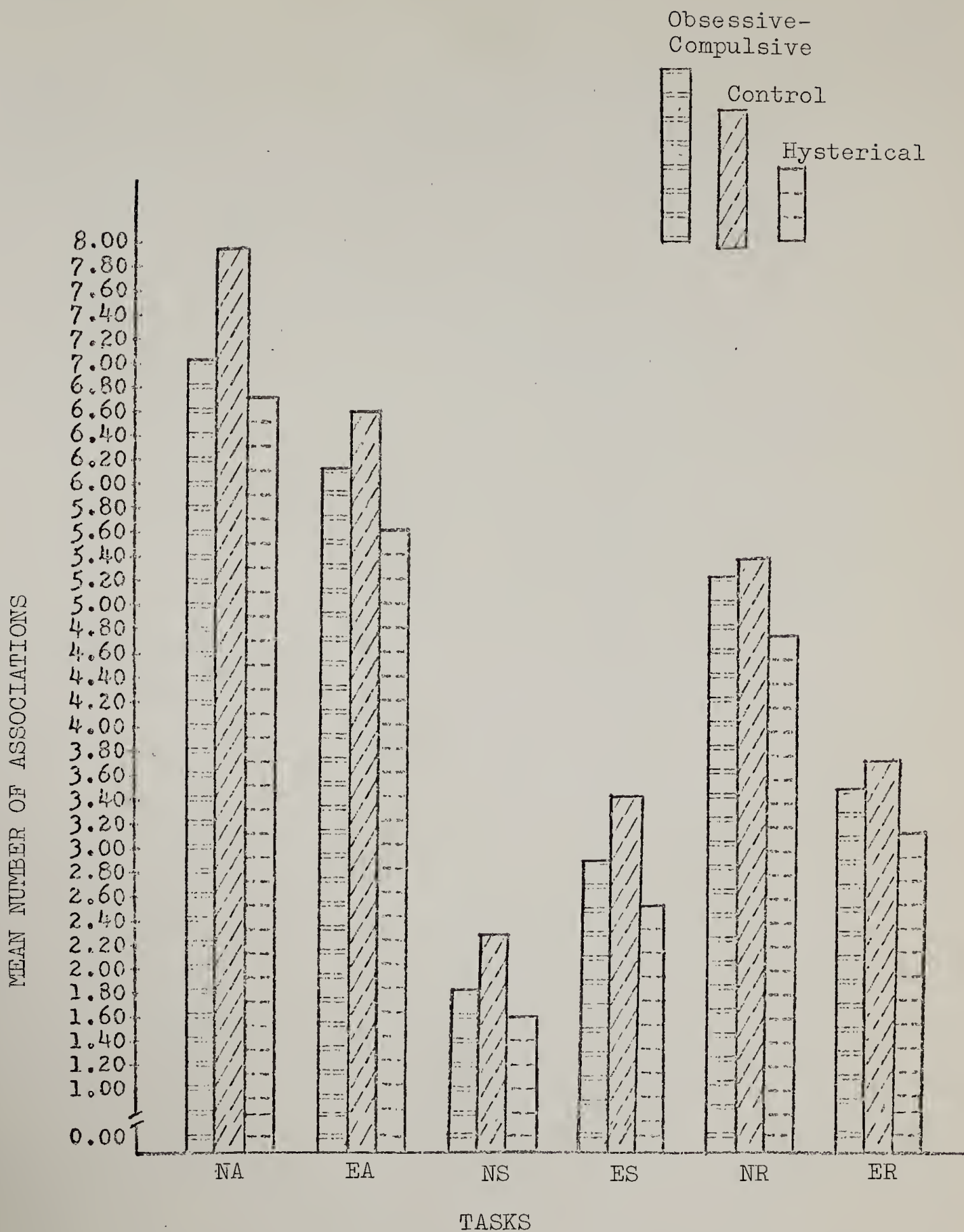


Figure 1. Number of responses as a function of task and groups

and for the interaction of personality and word emotiveness (Table 4). Figure 1 shows that once again control subjects gave more word associations to emotional words than the obsessive subjects, who, in turn produced more word associations than the hysteric group.

Another hypothesis relevant to the free association task indicated that both control and obsessive subjects would produce fewer subjective associations to the neutral and emotional stimulus words than the hysterical subjects. This hypothesis was not supported; the main effect for personality groups was significant at the .09 level (Table 5). The relative performance of the control subjects on these measures was higher than each of the other groups. Moreover, hysterical subjects were least productive of subjective responses, averaging 1.60 and 2.53 on the neutral and emotional words respectively, whereas the obsessive subjects produced an average of 1.84 and 2.96 subjective responses to the neutral and emotional words respectively. The respective means for the subjective responses of the control subjects were 2.30 for the neutral words and 3.42 for the emotional words.

Recall

The effect of personality characteristics upon recall of word association responses to neutral and emotional stimulus words are considered in the next two hypotheses. The

Table 4

Analysis of Variance of Number of Word Associations
as a Function of Personality, Emotiveness and Words

Source	SS	df	MS	F
Personality (P)	505.87	2	252.94	2.14
Emotiveness (E)	875.09	1	875.09	222.10**
Words (W)	658.04	19	34.63	11.54**
Ss/P (Error)	7093.37	60	118.22	
P x E	10.64	2	5.32	1.35
P x W	131.46	38	3.46	1.15
E x W	993.46	19	52.29	20.42**
Ss x E/P (Error)	236.25	60	3.94	
Ss x W/P (Error)	3423.73	1140	3.00	
P x E x W	105.65	38	2.78	1.08
Ss x E x W/P (Error)	2913.42	1140	2.56	

** Significant at .001 level

Table 5

Analysis of Variance of Number of Subjective Word
Associations as a Function of Personality,
Emotiveness and Words

Source	SS	df	MS	F
Personality (P)	275.44	2	137.72	2.58*
Emotiveness (E)	703.00	1	703.00	171.88**
Words (W)	688.98	19	36.26	15.42**
Ss/P (Error)	3203.95	60	53.40	
P x E	4.01	2	2.00	.83
P x W	102.31	38	2.69	1.14
E x W	189.25	19	9.96	4.15**
Ss x E/P (Error)	245.22	60	4.09	
Ss x W/P (Error)	2683.29	1140	2.35	
P x E x W	71.68	38	1.89	.79
Ss x E x W/P (Error)	2735.35	1140	2.40	

* Significant at .09 level

** Significant at .001 level

first of these statements predicted that hysterical subjects would recall fewer of their previous word associations to neutral stimulus words than control and obsessive groups, and that these latter groups would not differ from each other on this variable. The second predicted that hysterical subjects would recall fewer of their free associations to emotional words than high obsessive subjects who would recall fewer free association responses than the moderate subjects. These hypotheses were not confirmed inasmuch as the main effect of personality on this variable was not significant (Table 6).

Further analyses of the relevant data indicated a tendency for control subjects to recall more word associations to neutral and emotional words than obsessive subjects, who, in turn, recalled more word associations to the stimulus words than the hysteric subjects (Tables 3 and 6).

Stimulus Emotiveness

The differential effect of neutral and emotive stimulus words was focused upon by the following hypothesis, which predicted that there would be more word associations elicited by neutral stimulus words in free association and recall tasks for all groups than by emotive words. This hypothesis was supported by the findings. Table 4 indicates that the main effect of emotiveness upon the number of free associations was highly significant ($p < .001$). Significantly

Table 6

Analysis of Variance of Number of Recalled Word
Associations as a Function of Personality,
Emotiveness and Words

Source	SS	df	MS	F
Personality (P)	166.43	2	83.22	2.05
Emotiveness (E)	1765.03	1	1765.03	425.31**
Words (W)	363.50	19	19.13	8.62**
Ss/P (Error)	2430.02	60	40.50	
P x E	8.28	2	4.14	.99
P x W	74.38	38	1.96	.88
E x W	798.69	19	42.04	10.13**
Ss x E/P (Error)	248.91	60	4.15	
Ss x W/P (Error)	2527.50	1140	2.22	
P x E x W	65.64	38	1.73	.83
Ss x E x W/P (Error)	2365.94	1140	2.08	

** Significant at .001 level

more word associations were elicited by neutral stimulus words over all groups than by emotive words. An average of 7.26 responses were given to each neutral word in contrast to a mean of 6.08 free associates for each emotional word.

It was found that a main effect of emotiveness influenced recall at the .001 level also (see Table 6). With a mean of 5.10 recall words for each stimulus word, the neutral stimulus words were found to produce significantly better recall than did emotive stimulus material which had a mean of 3.43 recalled responses.

The final hypothesis which was tested made the prediction that there would be a main effect of emotiveness upon the number of subjective associations produced by all groups. This hypothesis, too, was supported by the data. Table 5 demonstrates that this main effect was significant at the .001 level. The average number of subjective responses to each emotional word was 2.97, significantly greater than the average 1.91 responses elicited by the neutral stimulus words. It was also apparent that a significant interaction of emotiveness and words was present in the data involving subjective responses (Table 5).

Additional Analyses of Data

When the simple effects of the emotiveness variable were tested for each group on the word association,

subjective association, and recall measures, the following results were found. For the obsessive group, the effect of affectively toned stimulus material lowered their recall performance to neutral words from a mean of 5.23 to 3.43 ENR's. This effect was significant at the .001 level.

The hysterical group of subjects decreased in their average recall, with this effect at the .025 level of significance.

On the variable of subjective associations, the hysterical subjects increased from an average of 1.60 to the neutral words to 2.53 subjective associations when exposed to emotive stimulus material. This effect was significant at the .025 level of significance (Table 3). On the subjective associations measure, the obsessive subjects increased from a mean of 1.84 responses for the neutral words to a mean of 2.96 for the emotional words, significant at the .05 level (Table 3). Within the obsessive group alone, the differential effect of emotiveness upon recall ($p < .001$) was more pronounced than its effect upon the subjective association measure for this group ($p < .05$). For the control group there was no significant differences in subjective responding as a function of the emotiveness of the stimulus words with a $p < .20$.

DISCUSSION

Free Association

There appears to be no significant difference between individuals who show predominantly obsessive-compulsive intellectualizing characteristics and those who show characteristics of denial and repression when examined on the experimental condition requiring the production of continuous word associations to neutral stimulus words.

When these groups are compared with a control group, however, which is characterized by more moderate personality features, they appear less fluent, but do not differ to any significant degree. The first part of the first hypothesis had predicted no significant differences between groups on this measure and the findings of this study supported this prediction.

Consistent with the theoretical viewpoints of a number of writers (Shapiro, 1965; Rapaport, 1951; Spiegel, 1959), the second part of the first hypothesis predicted that hysterical subjects would produce fewer word associations in a free association task than the obsessive subjects who, in turn, would give fewer word associations than the control subjects. This hypothesis was not statistically confirmed as it was found that there was no significant effect of personality upon this measure. Only a trend could be

described inasmuch as the control subjects tended to maintain a consistently higher level of responding to both kinds of stimuli than each of the other groups, and hysterical-like subjects being least fluent in their continuous free associations.

The prediction that hysterical individuals would be most productive of subjective associations, defined as those responses which were not bound to the neutral and emotional stimulus material, was based upon the views of Spiegel (1959) and Abse (1966). These writers considered the hysterical to manifest a tendency to symbolically express repressed primitive thought material in his free associations. According to Spiegel, the hysterical individual "doesn't linger on language and verbal thought and formulation for these would slow up the full sweep of the dramatization" (p. 928). In the present study it was found that the hysterical group produced fewer subjective associations than the obsessive group which group gave fewer subjective associations under neutral conditions than the control group for all stimulus words although these differences were not significant. This order of performance on the subjective association was the reverse of that predicted.

It appears that individuals (the control group) who are not characterized by either neurotic intellectualizing or repression and denial tend to show a consistent freedom

of expression in their cognition and communication regardless of the nature of the stimulus conditions. Their free associations show a tendency, which is not significant, to be characterized by less constriction and guardedness. Applying Bordin's (1966) viewpoint to these differential modes of response, one may cautiously consider the control group to show more "involvement" on this task than the two other personality groups and a wider range of expression and affective experience. According to Bordin when there is involvement, it may preclude the superficial level of expression noted for the intellectualizer, and preclude as well the emotional lability attributed to the hysterical neurotic (Schafer, 1948; Rapaport et al., 1946; Fenichel, 1945; Angyal, 1965). In brief, inhibition of expression, apparently characteristic of both the hysteric and the obsessive seems to point to a limitation in their performance when evaluated in terms of their freedom of expression. But this conclusion is only tentative and requires further evidence.

Recall

The first of two hypotheses concerned with differential group recall predicted that hysterical subjects would recall fewer of their previous associations to the stimulus word than control and obsessive groups, but that these latter groups would not differ from each other on recall of neutral

associations. Shapiro's (1966) description of the difference in attention between hysterics and obsessive individuals was pertinent to the rationale of this hypothesis. According to him, the thought processes of the hysteric are characterized by distractibility, diffuseness and a repressive quality "the nature of . . . [which] provides the groundwork for forgetting and makes it, in fact, inevitable" (p. 111). In contrast to this cognitive style, the obsessive compulsive type of defense is said to enhance memory of facts by an "active, intense and sharply focused attention" (pp. 111-112). This hypothesis was not supported by the results. There was no significant difference between the mean recall scores of hysteric subjects and those of the control and the obsessive groups. The finding of no difference between obsessives and controls is consistent with Hartmann's (1964) finding of no difference between such groups in the recall of incompleted tasks.

Following the evidence presented by such researchers as Carlson (1954), Gossett (1964) and Eriksen (1954), the second hypothesis in this section predicted differential recall for the personality groups when the task required the subjects to remember their previous associations to the emotional stimulus material. Specifically, it was predicted that hysterical subjects would recall fewer associations than obsessives who would also recall fewer than the control

group. The findings of this part of the study did not support this prediction although there was a tendency ($p < .10$) for the control subjects to recall more of their associations to emotional stimulus words than the obses-sives and hysterical subjects. Possibly, this failure to find significant differences in recall may be attributed to our difficulty in obtaining subjects high on the hysteria measure.

Stimulus Emotiveness

A number of investigators have found that the effect of affectively laden stimulus material upon free association differs from that of neutral stimulation. Osgood (1953) has presented his viewpoint regarding this difference by indicating that stimulus context characteristics influence mediational processes in the free word association experiment and help to determine the particular response which an individual makes under that condition. As discussed earlier, individual differences may be seen to influence the total momentary context of a response for an individual or for a group. It is the arrangement of one's associative hierarchy that may change as a function of this momentary context or psychological set. The effects of personality and the nature of the stimulus context in relation to the free association experiment have been the focus of the present study.

The first hypothesis relevant to this problem predicted that there would be more associations elicited by neutral stimulus words in free association and recall tasks for all groups than by emotive words. The data demonstrated that emotional words led to fewer associations and fewer recalled associations and this hypothesis was supported in the predicted direction. The present results are consistent with Bousfield's (1944) findings that the rate and asymptote for pleasant associations were higher when subjects were instructed to produce sequences of pleasant and unpleasant words because the list of emotional words which were generally unpleasant elicited significantly fewer responses than the more pleasant neutral list.

The prediction that a main effect of this variable would significantly increase the number of subjective responses for the groups as a whole was formulated upon the concept of an effect of the stimulus context upon mediational and instantial associative processes which Osgood and Bousfield and Barry proposed. Because the emotional stimulus material of the present study contained words related to censure, sex, and the family, it was predicted that these words would elicit more personally meaningful responses than would neutral words which previously were found to elicit fewer subjective responses (Brown, 1965). This prediction was confirmed by the present findings.

Finally, there was found in additional data analyses that although the effect of emotiveness upon all groups was manifest in lower fluency, poorer recall and a greater number of personal associations to stimulus material, each group showed this effect in a relatively different manner. Specifically, high obsessive-compulsive subjects responded to the stress of emotional stimulation with a consistent recall disturbance which reached a higher level of significance than did the high hysterical group. On the other hand, the high hysterics responded to the same stress with a coping mechanism which seemed related to their emotional lability. For this group the suggestion of a specific cognitive mode of response was manifest in a particularly significant increase in subjective associations. What makes this finding even more notable is its contrast to the absence of any significant change for the control group on this measure. However, this conclusion is only tentative. Future research may profit from further exploring this evidence of specific personality-cognitive styles.

SUMMARY

This study proposed to investigate the influence of personality styles and the effects of stimulus emotiveness upon cognitive processes in continuous free association and recall tasks. Sixty-three undergraduate students who served as subjects were classified according to their MMPI test performance on the relevant scales of hysteria and psychasthenia. Each of two groups of 21 subjects were characterized by obsessive-compulsive personality features or neurotic hysteria. The third group was composed of 21 students who scored moderately on these measures and constituted the control group.

Stimulus material contained 40 common words, 20 of which were emotionally toned, and 20 of a neutral quality. These words were controlled for such linguistic properties as length and frequency. A continuous free word association procedure was utilized in the first of two tasks and was followed by a free recall task. All subjects were exposed to the same conditions as a group and wrote their responses in booklets with which they were provided. These responses were scored for the following measures: (1) number of associations; (2) number of subjective associations; and (3) number of correctly recalled associations. These measures were then compared to test for differences in

personality styles and for the influence upon performance of emotionally-laden stimulus material.

The findings indicated that personality was of non-significant influence upon differential performance on the association and recall tasks. Although the control group was more fluent than both of the other groups across all measures, this difference approached statistical significance only for the number of subjective associations. This trend was considered as a tendency for the non-neurotic group to be more fluent in their response to emotional stimulation than either of the other groups.

The effects of emotional stimulation upon all measures were highly significant. The number of word associations decreased when the stimulus words were of an emotional nature. Associative productivity was decreased for all groups as a function of the emotional quality of the stimulus words. The number of subjective responses was increased for all groups by this effect. Recall, too, was affected at a highly significant level by emotional stimulation, with a notable increase in forgetting emotional words relative to neutral words. Specific differences in the degree of these effects according to personality group were also discussed, and future research was suggested in order to test certain tentative conclusions regarding individual differences in cognitive control.

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APPENDICES

APPENDIX A

INSTRUCTIONS

I. Continuous Association Task

1. Ask subjects to sit in the center rows of seats, one seat apart from each other.
2. Hand out answer booklets row by row.
3. Ask subjects to fill in the face sheet, printing their names, ages, and their current semester standing.
4. Read the following directions after the above procedure:

This is a test to see how many different words you can think of and write down in a short time after you see a key word.

I am going to project onto the screen (point to screen) a list of these key words. The words will be presented one at a time after a "click" sound (sound the "click"). After each word is removed from view, write in your booklet as many other words as you can which the word on the screen brings to mind. The words which you write may be things, places, ideas, events or whatever you happen to think of when you see the key word.

Write all words that you think of on the page of your booklet that corresponds with the number of the word on the screen. That is, write the words that word numbered one brings to mind on page one of your booklet. Write your associations to word numbered two on the screen on page two of your booklet. Do the same for each of the words which are shown. (Show a sample booklet as you describe the procedure.) Be sure to write as many different words as you can without repeating any.

APPENDIX B
INSTRUCTIONS

II. Recall Task

1. Subjects are to be seated in the center rows of seats, one seat apart from each other. There is to be no talking.
2. Hand out answer booklets row by row.
3. Ask subjects to fill in the face sheet, printing their name, age and their current semester standing.
4. Ask subjects to write the number "2" on the face sheet. This will denote the task number.
5. Read the following directions after the above procedure:

This is a test to see how many words you can correctly remember writing in response to the key words you saw on the last test.

This time I am going to project onto the screen the same list of key words as you were shown before. Each key word will be presented after a "click" sound. Look at each word as it appears on the screen and think of the words which you wrote the last time you saw this key word. Write the words you remember on the page of your booklet that corresponds to the number of the word on the screen. For example, the words you recall writing last time in response to key word number "1" should be written on page number "1" of your booklet, those to word numbered "2" on page numbered "2" of your booklet and so on for all the rest.

Are there any questions?

APPENDIX C

Examples of Subjective Responses to Stimulus Words

<u>Neutral Words</u>		<u>Subjective Words</u>		<u>Emotional Words</u>		<u>Subjective Words</u>
*1. Forest	-	Tempest		2. Vulgar	-	Creep
3. Center	-	Star		4. Mother	-	Tired
5. Agency	-	James Bond		7. Filthy	-	Horrible
6. Column	-	Subtract		10. Punish	-	Believe
8. Autumn	-	Warm		12. Kisses	-	Like to
9. Carton	-	Animal		13. Stupid	-	Show off
11. Harbor	-	Night		16. Molest	-	Wreak
14. Flower	-	Messy		19. Damage	-	Through
15. Planet	-	Escape		20. Insult	-	Cry
17. Theory	-	To be Proven		22. Choked	-	Prostituted
18. Warmth	-	Soft		24. Caress	-	Needed
21. Obtain	-	Strive		26. Guilty	-	Embarrassed
23. Bright	-	Happy		28. Afraid	-	Wolves
25. Comedy	-	Of Errors		29. Wicked	-	Poison apple
27. Thread	-	Lost		31. Coward	-	Firing squad
30. Garage	-	Play		33. Hatred	-	Hopeless
32. Window	-	Touch		34. Attack	-	Money
35. Museum	-	Empty		37. Defect	-	Poor
36. Grassy	-	Peaceful		38. Fright	-	Night
39. Branch	-	Off		40. Insane	-	Need help

*Order of presentation.

APPENDIX D

Number of Free Associations, Number of Subjective
Associations and Number of Recalled Associations
for Each Subject in Each Group

NUMBER OF ASSOCIATIONS GROUP 1 OBSESSIVE COMPULSIVE

005	1	1	1	06	05	06	05	05	04	07	07	08	04	05	03	05	08	06	05	07	06	07	04
005	1	1	2	06	06	04	06	06	03	04	03	02	04	04	07	04	03	06	03	06	04	04	05
010	1	1	1	06	05	03	03	08	03	07	09	06	05	05	04	05	04	06	09	09	06	07	08
010	1	1	2	05	05	04	05	08	06	04	05	05	04	05	08	04	05	03	03	04	04	05	06
011	1	1	1	07	05	04	07	07	09	09	08	10	05	10	08	06	04	05	10	08	06	06	07
011	1	1	2	06	07	06	11	08	06	08	02	05	04	08	07	04	05	04	04	09	06	05	06
017	1	1	1	08	08	07	08	08	10	07	07	08	05	10	12	09	09	08	08	05	10	08	09
017	1	1	2	00	08	11	08	12	06	10	10	08	06	11	05	05	05	08	08	07	08	06	07
023	1	1	1	10	07	06	08	10	08	10	13	13	09	09	07	09	08	14	10	11	10	09	09
023	1	1	2	05	10	07	11	10	08	07	12	07	10	10	10	08	09	07	06	13	10	10	10
030	1	1	1	11	06	05	07	07	08	08	08	06	04	07	08	08	07	07	08	07	05	06	06
030	1	1	2	06	06	05	06	06	06	04	08	04	06	09	07	05	04	06	03	08	04	04	05
040	1	1	1	08	07	05	07	05	06	05	08	06	08	04	04	05	07	06	09	07	06	07	05
040	1	1	2	07	07	05	07	05	04	08	04	06	09	07	07	03	04	04	04	07	07	06	05
055	1	1	1	12	07	04	08	09	06	04	08	12	06	08	07	07	08	09	06	08	05	07	09
055	1	1	2	08	06	04	12	08	08	07	08	05	05	09	07	00	07	05	04	07	06	06	08
056	1	1	1	11	08	07	07	10	07	05	09	13	08	06	05	08	06	04	07	12	07	07	09
056	1	1	2	06	11	07	05	09	07	07	04	05	07	07	07	07	07	04	05	06	05	06	06
072	1	1	1	12	05	05	09	11	05	08	09	13	08	09	07	11	07	09	10	09	07	11	09
072	1	1	2	05	04	07	07	05	06	11	05	05	08	08	09	09	06	04	05	07	05	06	06
073	1	1	1	04	03	04	04	04	03	06	05	05	04	07	04	04	05	05	04	07	04	06	05
073	1	1	2	03	04	04	04	06	04	05	04	03	04	06	05	04	04	05	03	06	04	04	03
076	1	1	1	08	04	05	06	06	07	07	06	12	08	06	07	09	04	06	06	05	06	07	05
076	1	1	2	08	05	07	07	05	03	04	05	04	05	08	05	05	00	06	06	05	10	05	07
078	1	1	1	11	07	07	09	10	07	09	09	10	07	06	07	08	09	07	06	07	07	09	07
078	1	1	2	06	08	07	06	07	05	06	08	05	08	07	04	04	07	05	03	06	05	08	06
081	1	1	1	06	04	03	04	07	05	06	06	07	05	06	05	08	07	06	06	08	08	10	08
081	1	1	2	05	04	05	04	05	06	04	01	00	04	04	05	05	06	08	04	08	05	05	06
091	1	1	1	08	06	05	05	08	08	09	07	08	05	07	07	08	00	07	06	06	09	07	09
091	1	1	2	05	05	05	07	09	07	07	04	08	08	07	07	04	05	06	06	00	06	05	07
092	1	1	1	12	08	09	08	11	04	10	12	10	08	07	09	08	10	09	10	12	11	10	09
092	1	1	2	07	10	09	08	09	08	10	07	08	10	09	10	10	09	09	09	11	08	09	10
096	1	1	1	00	00	00	06	08	05	08	08	08	04	05	06	05	07	07	07	05	05	05	09
096	1	1	2	00	00	05	05	05	03	03	01	04	04	07	04	05	05	04	05	04	02	04	06
101	1	1	1	09	05	03	06	07	06	07	07	05	06	06	06	06	03	07	06	08	04	07	06
101	1	1	2	02	06	04	04	03	03	05	04	05	05	06	04	05	06	03	04	08	02	05	05
104	1	1	1	06	08	09	09	13	10	11	12	11	12	08	12	13	08	13	12	11	10	10	10
104	1	1	2	08	13	09	10	08	10	08	09	11	06	12	14	10	09	10	07	06	12	11	13
107	1	1	1	07	04	04	05	08	06	07	10	09	06	07	07	08	08	05	07	05	08	05	04
107	1	1	2	06	09	05	04	05	05	08	05	03	03	03	05	06	03	04	05	06	02	02	04
115	1	1	1	10	04	07	06	08	05	10	10	07	05	06	05	09	11	07	07	09	09	06	09
115	1	1	2	05	10	08	10	06	09	05	08	05	10	08	07	09	05	06	04	08	05	06	06

NUMBER OF ASSOCIATIONS GROUP 2 CONTROL

001	2	1	1	00	00	00	00	07	11	10	10	11	08	10	10	09	09	09	09	11	10	09	09
001	2	1	2	00	00	00	12	06	07	06	07	10	09	10	08	07	09	08	08	06	06	09	06
004	2	1	1	20	13	09	09	12	12	10	12	15	12	12	09	15	11	13	12	14	12	15	11
004	2	1	2	10	12	14	14	12	08	09	14	12	12	09	11	16	09	10	12	09	13	01	11
012	2	1	1	14	09	03	07	12	05	08	09	11	09	11	07	10	11	08	09	12	10	08	07
012	2	1	2	06	10	05	07	11	05	08	07	09	07	08	10	08	06	08	07	06	07	06	10
022	2	1	1	14	08	05	10	14	11	12	13	12	10	12	08	12	07	10	07	13	09	13	15
022	2	1	2	06	10	06	09	10	06	09	09	08	07	10	07	09	09	08	12	06	08	11	10
024	2	1	1	15	07	06	07	13	09	11	10	09	06	11	08	08	09	09	08	12	10	00	09
024	2	1	2	09	12	07	09	07	08	08	09	05	09	07	10	10	05	09	09	11	09	08	10
031	2	1	1	08	03	03	06	08	08	08	06	06	06	05	07	06	04	06	08	04	08	09	07
031	2	1	2	05	05	05	04	07	05	06	05	04	06	06	05	05	04	04	04	07	04	04	05
034	2	1	1	04	07	04	08	12	00	07	09	06	04	08	06	06	07	07	06	07	05	07	06
034	2	1	2	06	07	08	06	02	03	04	06	04	05	05	08	04	08	06	05	06	04	04	06
035	2	1	1	11	08	08	08	11	11	15	11	12	09	12	07	10	10	11	09	12	11	11	12
035	2	1	2	08	12	10	07	13	06	11	08	06	09	12	11	10	06	07	08	10	08	09	07
036	2	1	1	12	09	09	10	12	06	12	12	12	09	10	08	09	09	10	08	12	11	11	08
036	2	1	2	09	11	08	11	11	10	10	08	09	09	09	08	08	09	07	07	09	06	09	07
042	2	1	1	11	07	06	09	09	08	08	10	09	07	09	08	09	09	10	08	08	08	11	08
042	2	1	2	07	08	06	08	09	08	10	08	08	09	11	08	08	07	10	07	09	09	05	11
044	2	1	1	12	08	05	05	11	07	09	09	09	05	10	06	07	08	06	08	09	08	08	06
044	2	1	2	04	06	05	06	05	03	03	05	04	06	04	06	05	04	05	04	05	05	04	05
058	2	1	1	09	06	03	06	07	05	08	07	06	04	06	06	07	06	06	06	08	06	04	07
058	2	1	2	07	07	05	04	04	04	04	04	03	05	04	05	04	05	05	03	06	05	00	06
060	2	1	1	08	07	03	07	08	06	06	11	09	07	07	06	04	04	07	10	06	10	08	07
060	2	1	2	04	06	06	07	04	05	07	03	03	06	08	04	07	07	06	05	09	05	05	07
062	2	1	1	07	04	03	06	05	05	05	05	06	03	04	05	04	05	03	06	05	05	04	04
062	2	1	2	03	03	04	04	05	04	04	03	03	04	04	04	03	03	03	04	07	03	09	04
063	2	1	1	08	06	04	05	09	04	11	08	04	06	06	04	05	05	06	05	10	09	04	07
063	2	1	2	04	05	04	04	06	03	06	02	05	04	04	04	05	04	03	05	03	06	02	06
069	2	1	1	06	04	03	06	07	05	08	09	07	05	06	05	07	05	08	07	09	07	09	05
069	2	1	2	04	06	06	05	07	04	08	08	05	05	06	06	05	05	05	04	05	05	05	06
086	2	1	1	07	06	04	06	10	04	04	12	10	05	09	08	10	09	07	09	12	09	10	09
086	2	1	2	05	07	05	07	10	08	07	07	05	06	09	08	08	05	04	06	09	07	07	09
093	2	1	1	08	04	04	04	07	06	06	08	07	05	05	06	07	05	07	05	07	05	06	04
093	2	1	2	04	07	05	05	03	04	06	06	02	05	06	04	06	04	05	03	06	05	04	03
108	2	1	1	12	10	05	07	07	06	09	10	06	08	07	07	07	06	08	08	08	08	06	07
108	2	1	2	04	07	04	07	06	04	06	04	05	08	06	04	07	04	04	02	05	05	03	06
109	2	1	1	09	04	03	05	09	08	06	10	07	06	00	05	08	06	08	09	10	06	07	07
109	2	1	2	00	10	00	08	08	08	06	07	07	06	04	06	06	06	07	03	09	06	05	06
111	2	1	1	13	10	06	10	09	12	08	10	10	09	09	06	10	10	10	11	12	09	09	10
111	2	1	2	09	12	09	09	08	05	09	12	08	08	07	11	07	05	06	06	10	04	06	08

NUMBER OF ASSOCIATIONS GROUP 3 HYSTERIC

002	3	1	1	09	05	04	05	09	06	03	06	08	04	05	01	04	02	04	06	05	04	07	05
002	3	1	2	04	05	06	04	03	04	03	04	02	06	03	02	03	04	04	04	06	05	03	02
003	3	1	1	09	07	04	07	08	04	09	08	08	05	08	08	09	06	09	08	07	07	07	08
003	3	1	2	06	05	10	07	05	06	06	08	07	06	06	08	07	06	05	08	07	04	07	05
041	3	1	1	12	06	06	08	10	01	08	09	07	08	05	07	08	06	05	04	07	08	07	06
041	3	1	2	04	05	03	06	08	06	03	05	03	05	08	08	04	10	06	06	05	07	06	09
045	3	1	1	13	06	06	08	11	08	12	09	08	07	09	09	11	08	09	10	12	09	08	10
045	3	1	2	09	09	07	09	08	08	06	05	05	08	09	07	10	07	10	08	11	07	06	08
048	3	1	1	06	05	03	03	06	04	05	06	03	05	08	05	06	02	06	05	05	05	07	06
048	3	1	2	04	04	03	02	00	04	03	06	03	02	07	06	03	04	04	04	06	04	03	02
050	3	1	1	10	05	04	07	07	06	06	04	06	05	04	06	07	06	07	08	07	07	05	07
050	3	1	2	07	07	07	05	06	06	06	07	05	05	08	06	05	05	05	06	06	06	05	07
051	3	1	1	05	05	06	05	00	10	04	11	09	09	04	06	07	08	08	09	08	06	06	07
051	3	1	2	06	12	06	06	08	07	07	07	03	08	07	06	07	05	02	06	05	03	07	08
053	3	1	1	12	07	05	08	11	08	09	10	12	07	05	08	11	07	08	09	07	07	04	06
053	3	1	2	07	06	08	08	07	05	06	08	06	05	07	07	06	07	06	02	06	05	05	06
057	3	1	1	09	11	05	09	08	07	10	10	08	08	07	08	10	08	07	10	08	09	08	11
057	3	1	2	07	08	08	06	09	05	07	08	06	09	07	09	06	07	06	06	06	06	07	07
061	3	1	1	06	04	04	03	04	05	05	05	05	05	05	07	03	07	04	04	03	05	03	04
061	3	1	2	00	03	05	05	03	05	05	02	04	03	04	05	07	02	04	07	05	03	02	04
064	3	1	1	11	07	04	07	06	06	07	09	06	07	05	03	06	00	05	06	09	06	07	10
064	3	1	2	05	06	06	03	05	05	06	05	04	05	05	05	05	05	04	03	05	04	05	05
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070	3	1	1	10	08	08	08	08	07	09	09	12	11	09	05	11	08	10	09	10	08	09	12
070	3	1	2	07	09	06	09	08	09	09	06	04	10	07	07	09	09	10	07	08	09	05	07
071	3	1	1	09	08	05	08	08	06	07	11	07	06	09	06	08	07	07	08	07	08	06	08
071	3	1	2	08	08	06	07	07	06	06	07	06	06	08	09	08	07	07	08	08	06	07	05
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082	3	1	1	09	06	03	07	07	05	06	05	09	04	06	04	05	06	06	07	06	08	06	07
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087	3	1	2	05	06	05	07	11	05	05	06	04	08	06	07	07	08	07	07	06	07	07	06
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094	3	1	2	05	07	08	07	09	08	10	08	08	08	11	07	07	08	08	08	07	06	07	07
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095	3	1	2	04	08	06	06	05	03	06	04	04	05	08	03	03	04	04	06	06	02	05	06
098	3	1	1	00	00	00	04	00	02	03	03	03	01	03	01	03	02	02	01	02	01	01	02
098	3	1	2	00	00	04	04	02	01	01	01	01	03	01	01	01	02	02	02	02	02	01	03
110	3	1	1	06	04	01	05	06	05	07	08	05	05	06	03	06	04	05	07	06	06	03	06
110	3	1	2	04	05	00	03	04	01	03	03	04	04	05	00	03	03	02	03	01	05	04	05

SUBJECTIVE ASSOCIATIONS GROUP 1 OBSESSIVE COMPULSIVE

005	1	2	1	00	00	01	00	02	00	02	02	00	01	01	02	00	00	00	00	03	00	01	00
005	1	2	2	03	03	03	02	01	00	03	00	00	00	01	02	01	01	03	02	02	00	01	03
010	1	2	1	00	01	00	00	01	00	02	01	02	00	00	00	00	00	01	05	01	00	03	03
010	1	2	2	01	01	02	04	06	03	01	00	02	02	03	02	02	02	01	00	01	02	03	01
011	1	2	1	01	00	01	00	00	01	02	01	00	01	00	01	02	01	02	03	03	01	01	00
011	1	2	2	01	02	01	07	03	02	07	00	02	00	00	02	01	03	02	03	04	05	01	02
017	1	2	1	01	02	03	00	02	01	02	02	02	02	04	10	04	01	02	01	01	04	02	04
017	1	2	2	01	05	05	03	04	02	07	06	07	01	05	00	03	03	06	04	02	06	04	03
023	1	2	1	04	02	01	04	01	08	01	00	00	00	01	01	05	01	06	01	03	04	02	02
023	1	2	2	03	03	03	05	06	02	05	06	03	06	03	05	05	06	04	04	08	03	09	02
030	1	2	1	03	03	01	01	03	00	00	02	02	00	02	04	02	00	03	01	00	03	04	01
030	1	2	2	03	04	02	00	05	03	02	05	02	02	06	02	03	01	04	01	05	00	03	02
040	1	2	1	01	01	00	00	04	00	01	01	03	00	02	02	00	00	01	02	06	03	05	00
040	1	2	2	02	04	02	03	04	02	05	01	02	03	04	00	00	03	03	04	04	07	02	04
055	1	2	1	03	02	01	01	04	01	03	02	00	00	04	03	02	00	01	01	04	01	02	04
055	1	2	2	05	04	03	08	06	05	04	05	04	01	07	04	01	02	03	02	04	03	03	05
056	1	2	1	02	02	02	00	02	00	00	03	00	02	04	00	06	02	01	02	06	01	05	03
056	1	2	2	03	06	03	02	07	04	02	02	02	03	04	00	05	03	01	02	04	01	03	02
072	1	2	1	03	01	01	01	06	00	02	01	00	00	06	01	03	01	03	06	05	01	08	06
072	1	2	2	02	00	04	04	03	01	05	01	06	03	05	02	07	02	02	02	05	04	04	03
073	1	2	1	00	01	00	00	02	00	01	01	00	01	01	00	01	01	01	01	01	00	02	00
073	1	2	2	01	01	01	01	03	01	02	01	00	01	01	01	01	01	02	00	03	00	02	00
076	1	2	1	01	00	00	00	04	02	00	01	01	00	02	00	02	01	03	01	01	00	02	03
076	1	2	2	01	02	01	03	04	01	04	04	03	01	03	02	04	01	03	06	05	08	04	02
078	1	2	1	04	01	02	03	06	03	04	06	01	01	03	02	03	03	03	02	07	04	05	05
078	1	2	2	03	06	04	04	05	03	04	02	00	01	07	03	04	05	02	02	02	04	07	06
081	1	2	1	00	00	00	00	02	00	00	01	01	00	02	00	00	00	00	01	02	02	03	00
081	1	2	2	01	00	00	00	00	00	01	01	00	00	00	01	01	02	02	02	01	00	01	02
091	1	2	1	05	02	01	01	04	00	01	02	00	01	02	01	01	01	04	03	01	03	03	02
091	1	2	2	02	02	02	01	05	06	03	01	05	04	03	02	01	01	03	06	01	02	01	02
092	1	2	1	01	04	04	03	06	00	06	04	07	02	03	05	04	04	06	05	06	08	06	05
092	1	2	2	04	06	07	05	06	07	07	04	06	08	02	06	07	08	05	07	06	03	07	07
096	1	2	1	01	01	01	02	02	00	02	00	00	01	00	02	00	01	01	01	01	03	01	02
096	1	2	2	01	01	03	01	00	02	01	00	00	02	03	00	03	00	03	03	01	01	02	04
101	1	2	1	01	00	00	00	02	00	01	02	03	01	00	02	03	00	00	02	02	01	03	01
101	1	2	2	00	02	00	00	03	02	01	02	01	01	03	02	02	03	01	03	04	03	01	01
104	1	2	1	03	02	03	02	07	04	03	02	02	02	05	04	02	00	02	05	07	00	06	03
104	1	2	2	04	07	04	07	05	04	03	05	05	02	07	05	07	05	07	06	03	09	08	09
107	1	2	1	00	00	00	00	00	00	00	01	00	00	04	00	02	01	00	00	00	02	02	01
107	1	2	2	01	04	03	01	02	03	05	00	02	01	01	02	03	01	02	02	02	00	01	02
115	1	2	1	01	02	01	01	02	00	02	06	03	02	04	02	05	03	02	01	02	05	03	01
115	1	2	2	01	08	02	06	03	05	03	05	03	03	04	04	07	02	02	03	01	04	03	02

SUBJECTIVE ASSOCIATIONS GROUP 2 CONTROL

001	2	2	1	00	00	00	00	03	03	03	01	03	04	06	03	02	04	00	03	05	04	06	03
001	2	2	2	00	00	00	09	03	02	06	05	09	03	07	03	04	05	05	05	04	04	08	04
004	2	2	1	14	08	04	03	07	09	04	04	04	11	08	00	07	05	05	05	08	08	13	08
004	2	2	2	08	01	13	10	08	07	03	11	09	08	07	04	14	08	08	11	08	13	00	05
012	2	2	1	05	03	00	02	06	00	03	04	00	01	02	02	05	03	01	01	06	04	06	01
012	2	2	2	01	05	02	02	07	03	06	04	07	03	04	03	06	05	07	06	04	04	03	03
022	2	2	1	06	04	01	04	10	03	07	08	01	04	09	02	07	02	04	02	03	03	06	02
022	2	2	2	02	07	03	07	07	03	05	06	06	05	06	04	08	08	06	10	04	06	09	08
024	2	2	1	04	02	03	01	03	01	02	05	04	00	02	01	03	03	02	01	02	02	01	04
024	2	2	2	05	07	02	01	04	02	06	03	02	06	02	04	06	01	05	03	05	02	05	06
031	2	2	1	03	02	01	01	06	05	08	03	03	01	02	02	03	01	04	03	01	05	06	02
031	2	2	2	05	04	02	01	05	04	04	00	02	01	03	02	04	03	03	03	03	03	03	03
034	2	2	1	00	02	01	01	05	01	01	03	01	00	01	01	05	01	02	02	04	00	02	03
034	2	2	2	03	03	04	02	01	00	02	02	02	02	01	00	02	04	03	02	02	03	03	04
035	2	2	1	02	02	02	00	06	00	04	02	00	00	06	04	04	02	01	01	02	02	08	05
035	2	2	2	04	09	00	01	08	02	08	01	05	02	10	03	08	05	03	04	03	05	08	01
036	2	2	1	01	01	01	03	05	00	04	10	01	00	04	03	03	03	01	07	05	05	08	02
036	2	2	2	03	07	05	05	05	02	06	04	05	05	05	01	03	06	03	04	05	06	06	03
042	2	2	1	01	01	03	00	00	00	00	02	00	00	02	01	02	01	00	00	01	01	02	01
042	2	2	2	05	04	01	03	06	01	08	02	03	04	06	02	05	02	05	04	07	02	03	05
044	2	2	1	04	00	01	00	05	01	02	01	03	00	01	01	03	01	02	02	03	03	04	03
044	2	2	2	03	02	02	04	01	01	01	01	03	03	01	00	03	02	03	02	02	02	03	04
058	2	2	1	00	00	00	02	00	00	01	01	01	00	00	00	01	01	00	01	02	04	00	01
058	2	2	2	00	02	01	01	02	02	01	01	01	03	00	02	00	00	02	01	05	05	01	01
060	2	2	1	01	02	00	00	04	00	01	04	03	00	03	00	01	00	03	05	01	05	03	03
060	2	2	2	03	05	03	03	01	04	04	00	01	02	04	02	06	04	05	03	05	05	03	04
062	2	2	1	02	00	00	00	02	05	01	00	02	00	01	01	01	00	01	04	02	03	02	01
062	2	2	2	01	01	02	02	04	01	00	01	00	03	02	00	00	01	02	04	03	01	02	01
063	2	2	1	02	02	01	01	01	00	00	01	02	01	02	00	01	00	00	00	04	01	03	00
063	2	2	2	03	02	02	01	03	02	03	00	02	01	00	00	03	01	02	05	00	02	00	05
069	2	2	1	02	00	00	01	00	00	01	01	02	02	00	03	01	00	02	01	01	02	03	00
069	2	2	2	00	02	01	02	04	01	04	01	02	01	01	00	03	03	03	03	04	04	04	02
086	2	2	1	02	03	02	00	03	01	00	01	00	01	02	00	03	03	01	03	07	04	07	02
086	2	2	2	04	02	03	03	04	03	03	02	03	03	04	01	06	03	01	05	04	05	05	04
093	2	2	1	03	03	03	01	02	00	00	00	04	00	02	00	02	00	01	00	01	02	02	00
093	2	2	2	08	00	01	03	02	01	02	02	00	02	03	00	03	00	03	01	03	00	02	01
108	2	2	1	00	04	01	00	02	02	01	01	03	00	01	00	00	01	00	03	02	02	03	04
108	2	2	2	01	05	01	01	05	03	02	01	02	04	03	02	05	01	03	00	04	02	02	03
109	2	2	1	01	00	00	02	04	00	02	04	04	01	01	03	03	02	02	04	07	02	03	02
109	2	2	2	01	07	01	05	06	04	05	03	04	02	03	03	05	05	04	02	06	05	05	02
111	2	2	1	04	02	00	01	02	03	00	00	04	00	04	00	01	01	05	01	03	04	00	04
111	2	2	2	06	05	04	00	02	02	03	04	04	04	04	03	05	02	05	04	05	03	02	02

SUBJECTIVE ASSOCIATIONS GROUP 3 HYSTERIC

002	3	2	1	00	01	00	01	03	00	02	02	02	00	01	00	01	00	01	02	01	02	03	01
002	3	2	2	01	04	02	02	02	01	01	01	02	04	02	01	02	01	01	02	02	01	00	00
003	3	2	1	01	02	00	00	03	01	01	03	01	02	02	03	02	00	03	01	03	01	04	01
003	3	2	2	03	03	06	02	03	02	03	03	05	04	03	03	04	01	01	05	04	01	04	03
041	3	2	1	02	02	04	00	01	00	03	05	03	02	04	02	06	03	01	02	04	02	01	02
041	3	2	2	02	02	02	04	05	03	01	02	02	04	06	03	04	08	04	05	03	07	04	05
045	3	2	1	03	01	01	03	03	00	06	03	00	00	01	02	03	00	03	02	04	03	04	06
045	3	2	2	03	00	04	04	03	05	01	00	01	03	04	00	03	04	04	05	07	02	03	03
048	3	2	1	01	00	00	01	03	00	01	00	00	00	00	03	00	01	02	01	01	02	04	00
048	3	2	2	01	00	00	00	01	01	00	00	00	00	03	01	01	02	01	04	01	02	00	00
050	3	2	1	01	01	02	02	01	01	01	02	00	01	02	02	02	01	02	01	02	02	04	02
050	3	2	2	03	04	04	02	03	02	04	04	01	00	05	03	01	03	02	03	02	04	03	01
051	3	2	1	00	01	01	00	01	01	01	02	01	01	01	01	03	00	01	01	01	01	02	00
051	3	2	2	02	03	00	01	06	03	03	02	01	04	02	04	04	02	01	02	01	03	05	02
053	3	2	1	02	01	00	01	04	00	00	01	01	00	01	00	00	01	00	01	00	01	01	00
053	3	2	2	02	01	05	00	02	02	03	02	01	01	03	02	01	01	01	00	01	03	01	00
057	3	2	1	02	03	00	01	01	00	01	01	01	04	01	00	00	00	01	02	00	02	02	01
057	3	2	2	03	03	03	00	07	02	02	03	02	05	04	01	02	00	03	02	03	03	05	03
061	3	2	1	00	00	03	00	03	00	00	02	03	02	02	00	02	03	01	02	02	03	02	01
061	3	2	2	01	02	04	03	01	04	02	01	00	01	01	01	06	01	04	03	02	00	01	02
064	3	2	1	04	02	00	01	04	01	03	04	00	01	02	02	01	01	01	03	04	03	03	05
064	3	2	2	01	04	04	01	02	03	05	03	03	01	02	00	04	02	02	01	03	02	04	03
068	3	2	1	01	01	00	00	05	02	01	00	00	00	01	03	00	00	03	03	02	01	01	00
068	3	2	2	01	03	02	01	04	00	02	01	01	00	03	01	02	01	02	02	04	03	02	02
070	3	2	1	05	01	00	00	00	00	01	01	00	02	02	02	01	01	01	02	04	01	03	04
070	3	2	2	02	01	01	01	05	01	04	00	01	02	02	02	05	03	06	03	04	06	03	03
071	3	2	1	05	02	02	03	03	02	02	01	00	02	04	02	01	00	01	01	04	02	03	03
071	3	2	2	02	06	03	03	03	02	03	05	04	01	04	03	05	04	05	07	04	05	05	01
080	3	2	1	01	05	03	04	07	00	04	07	01	03	03	02	02	01	03	02	00	05	02	01
080	3	2	2	03	04	05	05	05	01	02	00	02	02	04	00	01	07	05	03	06	03	06	04
082	3	2	1	00	00	00	00	01	00	02	03	00	00	03	01	01	02	03	00	01	00	02	00
082	3	2	2	03	03	02	02	01	03	04	02	02	05	04	03	04	01	03	04	02	02	02	04
087	3	2	1	00	02	02	03	02	00	03	03	01	01	03	03	04	02	01	02	02	04	01	02
087	3	2	2	03	02	03	04	08	02	02	03	02	03	03	01	03	02	05	05	02	06	04	04
094	3	2	1	05	00	00	00	04	01	01	05	01	01	04	02	02	04	08	04	02	09	09	02
094	3	2	2	03	03	02	03	06	06	08	02	05	04	05	02	06	07	05	05	05	06	05	04
095	3	2	1	00	03	00	01	00	00	01	02	00	02	01	01	01	00	00	00	02	02	01	00
095	3	2	2	00	00	03	01	03	01	02	01	03	01	03	00	03	02	03	03	04	00	03	01
098	3	2	1	01	01	01	04	01	00	00	01	01	00	02	00	00	00	00	00	00	01	01	00
098	3	2	2	01	01	01	01	00	00	01	00	00	01	01	01	01	00	01	02	00	01	01	01
110	3	2	1	01	00	00	01	00	00	01	01	00	00	01	00	02	00	03	02	01	03	00	01
110	3	2	2	00	00	01	01	01	00	01	01	02	03	05	01	01	01	01	02	00	04	02	03

RECALL GROUP 1 OBSESSIVE COMPULSIVE

005	1	3	1	05	04	04	04	05	03	05	06	07	03	05	03	04	07	05	05	07	05	06	04
005	1	3	2	04	04	02	03	05	03	04	02	02	04	04	04	03	02	04	02	04	02	03	04
010	1	3	1	03	04	03	03	08	03	05	09	05	05	03	02	04	03	05	06	08	05	05	05
010	1	3	2	04	03	03	03	06	04	03	03	03	02	03	06	02	03	03	02	02	02	03	04
011	1	3	1	05	05	02	05	07	07	08	07	09	05	06	06	04	03	04	07	05	05	05	04
011	1	3	2	04	05	03	06	05	04	04	02	03	03	05	04	03	04	04	03	05	04	02	04
017	1	3	1	07	07	06	08	07	07	05	04	08	03	05	06	05	06	06	04	03	07	06	07
017	1	3	2	00	07	09	03	06	04	05	03	04	04	05	03	02	03	05	04	04	01	03	05
023	1	3	1	05	05	02	08	08	07	06	09	13	07	04	05	08	07	09	08	09	06	06	06
023	1	3	2	02	06	03	08	07	06	02	04	03	06	06	03	05	03	04	03	06	07	01	07
030	1	3	1	09	05	04	05	06	07	05	03	04	03	03	04	04	04	05	06	05	03	06	05
030	1	3	2	03	05	03	03	04	02	02	04	02	03	04	04	01	02	03	01	04	03	03	03
040	1	3	1	04	04	02	04	05	04	05	05	01	02	01	04	02	07	05	07	05	05	03	04
040	1	3	2	05	06	03	06	05	02	02	02	02	05	03	05	02	03	04	01	05	06	05	03
055	1	3	1	05	04	04	07	07	06	01	06	10	06	06	05	05	03	06	06	06	05	04	05
055	1	3	2	03	06	03	07	04	04	04	04	03	04	06	03	00	05	04	03	03	03	03	06
056	1	3	1	02	06	05	05	07	06	04	06	13	05	03	02	06	05	03	06	10	07	05	05
056	1	3	2	02	07	03	04	04	04	03	04	03	02	03	04	03	04	01	03	04	01	04	04
072	1	3	1	08	03	04	06	11	05	07	06	12	06	04	02	09	07	07	08	06	06	08	09
072	1	3	2	03	02	05	06	03	04	06	02	02	03	03	06	04	02	02	02	04	02	01	05
073	1	3	1	02	03	03	04	04	03	06	03	05	04	04	04	03	03	04	03	04	04	03	04
073	1	3	2	01	04	02	03	03	02	02	03	00	02	04	01	01	02	03	00	02	01	03	03
076	1	3	1	06	04	05	04	06	06	06	05	12	07	03	05	05	04	06	05	05	06	06	05
076	1	3	2	06	05	06	05	03	03	03	05	02	03	04	04	03	00	04	06	03	05	03	06
078	1	3	1	05	03	04	04	05	04	06	05	07	03	01	04	04	06	05	03	03	01	03	03
078	1	3	2	02	01	03	02	04	01	03	03	03	05	03	03	01	03	04	00	02	00	02	01
081	1	3	1	05	02	03	04	06	03	06	05	06	03	03	03	04	05	04	06	07	05	06	06
081	1	3	2	03	03	05	02	02	03	01	00	01	03	04	02	02	04	02	00	04	03	04	03
091	1	3	1	06	05	03	02	06	06	06	04	07	05	07	05	03	00	05	05	04	05	05	03
091	1	3	2	04	03	05	04	04	00	03	03	04	04	01	02	04	04	06	05	00	04	04	06
092	1	3	1	10	04	06	06	06	04	08	06	05	05	04	06	04	06	06	04	07	08	05	06
092	1	3	2	04	07	05	03	07	04	05	02	01	05	04	03	02	03	05	03	05	04	02	04
096	1	3	1	00	00	00	06	06	04	07	05	08	02	04	03	03	05	06	06	05	05	04	06
096	1	3	2	00	00	03	04	04	03	02	00	04	03	03	03	04	04	02	02	03	02	02	05
101	1	3	1	08	04	03	06	05	05	06	05	03	06	04	03	04	03	06	05	07	04	06	06
101	1	3	2	03	04	04	02	02	02	03	04	03	03	04	01	04	03	01	03	06	01	04	05
104	1	3	1	10	04	07	08	10	09	10	10	10	10	03	08	05	07	09	08	09	08	07	06
104	1	3	2	03	10	02	03	03	06	04	01	05	03	03	11	07	02	05	01	03	06	03	09
107	1	3	1	05	03	04	04	07	05	05	07	08	05	05	06	04	08	05	05	05	07	03	04
107	1	3	2	04	06	03	02	04	04	05	02	03	02	02	05	03	03	03	03	05	01	02	02
115	1	3	1	05	04	04	06	08	04	05	06	06	03	06	03	05	09	04	05	05	05	04	07
115	1	3	2	02	08	07	05	06	08	05	03	02	06	07	05	02	04	05	02	02	05	02	04

RECALL GROUP 2 CONTROL

001	2	3	1	00	00	00	00	06	09	05	07	10	03	05	05	05	03	06	06	06	06	05	07
001	2	3	2	00	00	00	03	04	05	03	01	03	01	02	03	02	03	03	04	01	03	01	03
004	2	3	1	07	07	06	08	09	09	06	04	13	06	02	06	09	03	08	08	07	09	08	01
004	2	3	2	04	10	09	05	07	04	07	12	07	07	06	04	02	02	05	06	06	09	00	05
012	2	3	1	07	04	03	07	08	04	06	06	08	07	06	05	06	09	05	07	08	06	08	06
012	2	3	2	03	05	04	04	07	04	05	02	05	07	07	09	03	03	07	03	04	05	04	08
022	2	3	1	04	04	04	06	08	05	07	06	10	05	07	06	06	04	06	06	07	08	06	07
022	2	3	2	04	05	04	02	06	02	03	04	04	04	03	02	04	02	03	04	02	03	05	03
024	2	3	1	09	04	04	06	09	06	08	06	09	05	09	05	05	08	07	07	08	06	00	07
024	2	3	2	05	08	05	06	03	05	03	07	02	08	02	05	03	03	07	05	03	06	06	06
031	2	3	1	04	02	02	04	04	08	05	04	03	05	05	03	03	04	04	06	04	06	07	04
031	2	3	2	02	04	04	03	03	02	04	02	02	04	02	03	04	03	02	01	04	01	01	05
034	2	3	1	08	02	04	03	10	00	06	07	04	04	06	03	05	04	06	02	03	05	03	04
034	2	3	2	05	06	05	03	02	02	04	03	03	02	04	02	03	06	03	01	05	01	03	02
035	2	3	1	07	07	07	07	07	06	10	07	09	06	09	05	06	08	07	06	07	07	06	08
035	2	3	2	05	06	05	05	05	04	05	04	03	03	05	10	07	05	06	01	05	04	02	05
036	2	3	1	07	06	06	08	10	05	07	06	09	09	04	07	08	07	06	07	06	08	08	07
036	2	3	2	05	07	06	05	08	07	04	07	06	07	05	07	05	04	05	06	07	04	04	04
042	2	3	1	04	05	04	07	08	07	06	07	06	03	04	04	05	05	06	06	06	06	07	04
042	2	3	2	04	03	04	06	05	02	05	02	05	06	06	01	04	06	03	04	07	05	02	06
044	2	3	1	06	03	04	03	08	05	07	06	05	03	06	05	05	05	03	05	05	07	04	05
044	2	3	2	03	05	04	04	02	02	02	02	02	05	03	05	04	02	03	02	04	02	03	04
058	2	3	1	08	04	02	06	07	04	06	05	05	03	04	05	05	06	04	05	05	04	03	05
058	2	3	2	03	04	02	02	02	02	03	01	00	02	04	02	02	03	03	01	00	04	00	05
060	2	3	1	08	04	03	06	06	06	05	10	07	06	06	06	04	04	04	08	05	07	06	06
060	2	3	2	03	04	03	06	04	04	05	03	01	05	07	03	05	06	03	03	06	04	01	03
062	2	3	1	03	04	03	05	03	03	03	03	04	03	04	04	02	05	03	06	03	04	03	03
062	2	3	2	02	02	04	02	01	02	04	02	02	02	04	03	01	03	02	04	04	01	02	03
063	2	3	1	04	04	04	03	06	04	08	06	04	03	02	03	02	04	04	04	06	06	03	06
063	2	3	2	03	02	02	02	04	01	03	02	04	02	03	03	02	02	03	02	02	02	01	03
069	2	3	1	06	02	02	04	06	05	06	06	05	04	03	02	03	03	04	07	05	05	05	04
069	2	3	2	01	05	04	01	04	03	04	06	03	03	04	03	05	02	04	00	03	04	03	05
086	2	3	1	07	01	03	06	07	04	03	11	08	05	05	07	03	04	04	07	08	07	07	04
086	2	3	2	02	05	04	05	06	04	06	05	03	04	07	04	03	03	04	03	06	04	03	05
093	2	3	1	06	04	03	04	06	04	06	07	06	03	05	05	06	04	05	03	06	04	06	04
093	2	3	2	02	05	03	04	03	04	03	03	02	04	04	03	03	03	05	02	04	05	04	02
108	2	3	1	11	07	05	05	04	05	06	07	06	05	06	05	05	05	05	06	05	06	05	06
108	2	3	2	02	05	03	06	04	01	04	03	03	05	03	02	04	03	03	02	02	04	01	04
109	2	3	1	03	02	03	04	05	06	05	01	04	04	00	02	04	04	07	05	06	06	01	04
109	2	3	2	00	05	00	02	05	04	02	04	02	03	03	03	04	03	02	01	05	03	00	03
111	2	3	1	08	08	05	06	08	07	06	07	07	06	05	05	08	08	09	10	09	04	06	06
111	2	3	2	02	09	03	03	04	03	04	05	05	04	04	05	04	03	05	03	01	03	01	05

RECALL GROUP 3 HYSTERIC

002	3	3	1	05	03	02	02	06	04	03	05	06	03	02	01	03	02	04	05	05	04	06	03
002	3	3	2	03	04	05	02	02	03	03	03	02	04	02	01	02	04	03	03	04	00	02	01
003	3	3	1	04	04	03	05	07	04	08	04	04	05	07	05	07	05	06	06	06	06	05	08
003	3	3	2	04	05	05	04	03	03	05	05	04	04	06	04	07	03	04	02	04	03	04	03
041	3	3	1	05	03	05	03	06	01	04	04	04	03	02	03	05	05	04	03	03	00	00	00
041	3	3	2	01	04	01	03	06	01	02	04	02	03	02	03	04	02	03	01	01	00	01	01
045	3	3	1	03	05	03	07	10	06	10	07	06	04	05	05	07	04	06	06	07	05	05	07
045	3	3	2	02	08	04	04	04	03	05	04	03	05	06	06	04	04	04	03	08	02	02	06
048	3	3	1	05	05	02	03	06	03	03	05	03	04	07	05	04	02	06	05	05	04	04	06
048	3	3	2	04	03	02	02	00	04	03	03	02	02	05	04	02	03	04	03	04	03	02	02
050	3	3	1	06	04	04	05	07	04	04	04	05	03	03	03	06	05	06	05	06	06	04	06
050	3	3	2	04	06	03	04	05	02	03	02	02	05	01	04	02	02	03	01	02	04	03	05
051	3	3	1	02	04	04	05	00	06	04	05	06	06	04	02	05	05	04	07	04	04	04	03
051	3	3	2	03	06	04	00	04	04	05	04	01	03	03	02	03	03	02	04	02	01	02	05
053	3	3	1	07	06	04	05	06	06	07	07	12	07	03	06	06	04	06	04	05	06	04	03
053	3	3	2	05	04	04	03	04	03	02	05	03	04	04	04	01	05	02	01	05	04	02	05
057	3	3	1	07	05	05	08	06	06	08	09	07	03	05	06	07	06	06	08	05	07	05	08
057	3	3	2	04	04	05	05	05	03	06	05	03	04	03	06	02	05	03	02	04	04	03	04
061	3	3	1	05	01	02	03	03	04	05	02	03	02	04	04	00	04	03	03	04	03	04	03
061	3	3	2	00	02	00	01	03	03	03	02	03	00	04	03	03	02	01	01	01	03	01	02
064	3	3	1	05	02	03	04	06	06	06	07	06	06	03	03	03	00	04	06	04	05	05	07
064	3	3	2	04	05	04	02	04	04	04	03	04	01	03	05	04	03	03	02	03	03	03	05
068	3	3	1	08	05	03	04	08	03	05	05	07	03	05	05	05	04	07	07	06	06	04	06
068	3	3	2	03	03	02	04	04	01	03	04	02	05	05	02	01	03	02	02	03	03	02	03
070	3	3	1	06	05	05	06	08	04	05	07	11	05	06	05	05	07	08	07	06	06	07	07
070	3	3	2	04	04	04	02	05	05	04	02	02	07	05	04	02	04	05	03	03	04	01	05
071	3	3	1	06	05	04	05	06	05	06	02	04	03	05	03	04	06	04	07	04	06	05	04
071	3	3	2	04	05	03	02	04	04	04	04	04	01	03	05	04	02	05	02	04	06	04	03
080	3	3	1	07	06	06	08	07	05	07	09	08	06	04	06	11	08	08	09	07	08	05	07
080	3	3	2	06	10	07	03	06	05	07	06	04	03	07	06	04	09	04	05	08	05	07	07
082	3	3	1	05	03	03	04	07	04	06	03	08	03	06	03	05	03	05	05	04	05	04	06
082	3	3	2	02	02	02	02	01	03	03	03	02	05	04	02	03	03	03	00	04	03	02	03
087	3	3	1	07	06	04	04	05	05	06	06	07	05	05	04	05	05	05	07	05	07	01	05
087	3	3	2	02	04	04	04	06	01	04	04	01	07	06	05	05	03	03	00	05	06	04	06
094	3	3	1	06	03	02	03	04	04	04	04	02	08	04	04	05	02	05	04	04	05	04	08
094	3	3	2	02	03	03	03	01	01	05	01	04	05	05	02	03	03	03	02	00	03	04	02
095	3	3	1	06	03	04	02	05	04	07	02	04	05	03	06	04	02	05	06	05	03	04	04
095	3	3	2	03	08	03	02	03	02	04	02	02	02	05	02	02	03	02	02	03	01	02	06
098	3	3	1	00	00	00	04	00	02	03	03	03	01	02	01	03	01	02	00	02	01	00	01
098	3	3	2	00	00	04	02	00	01	01	00	01	02	01	00	00	00	00	01	02	02	00	02
110	3	3	1	05	04	01	04	04	04	05	05	03	04	05	02	03	04	03	06	05	05	03	04
110	3	3	2	03	04	00	02	03	01	03	00	02	03	04	00	00	02	01	00	01	01	02	03

